Creation of a Family Caregiver Negotiation Training Program Using Artificial Intelligence

👤 **Alaine Murawski, LSW, AM,**[1]

Vanessa Ramirez-Zohfeld, MPH,[1] Johnathan Mell, PhD,[2] Allison Schierer,BS,[1] Jeanne Brett, PhD,[3] Lee A. Lindquist, MD MPH MBA[1]

1 Northwestern University Feinberg School of Medicine Division of Geriatrics, Chicago, IL
2 University of Central Florida, Computer Sciences, Orlando, FL
3 Northwestern University Kellogg School of Business, Management & Organization – Dispute Resolution, Chicago, IL

INTRODUCTION

Family caregivers of people with dementia (PWD) experience conflicts as they navigate the healthcare system but do not have adequate training to resolve these disputes. We sought to develop, and pilot test an artificial-intelligence negotiation training program, **NegotiAge**, for family caregivers.

METHODS

Development. We convened a team of negotiation experts, geriatrician, social worker, and community-based family caregivers (N=9; IL, FL, NY, CA). Content matter experts created informational videos to teach negotiation skills. Family caregivers generated dialogue surrounding caregiver conflicts. Computer science experts input generated dialogue into the Interactive Arbitration Guide Online (IAGO) platform to develop avatar-based agents (e.g. sibling, older adult, physician) for caregivers to practice negotiating.

Pilot Study: Family caregivers accessed scenarios to negotiate (e.g. physician recommendations, sibling disagrees with care, PWD refusing support). Caregivers negotiated in real-time with avatars designed to act like humans, including emotional and irrational behaviors. Negotiation tactics are used until mutual agreement occurs or time expires. Immediate feedback was generated from the responses chosen and tactics utilized to assist with the negotiation skills training.

After negotiation activities were completed, participants could access didactic material such as videos and tip sheets. Participants were surveyed after completion

Participants provided study feedback via semi-structured interviews to help identify any technical issues and/or glitches as well as about the overall usefulness, satisfaction, and ease of use of NegotiAge.

RESULTS

Twelve family caregivers of PWD participated in the pilot-testing (Table 1).

NORTHWESTERN
PEPPER CENTER

Northwestern Medicine®
Feinberg School of Medicine

We developed **NegotiAge**, an AI-, web-based negotiation training program to help family caregivers resolve conflicts involving older adults.
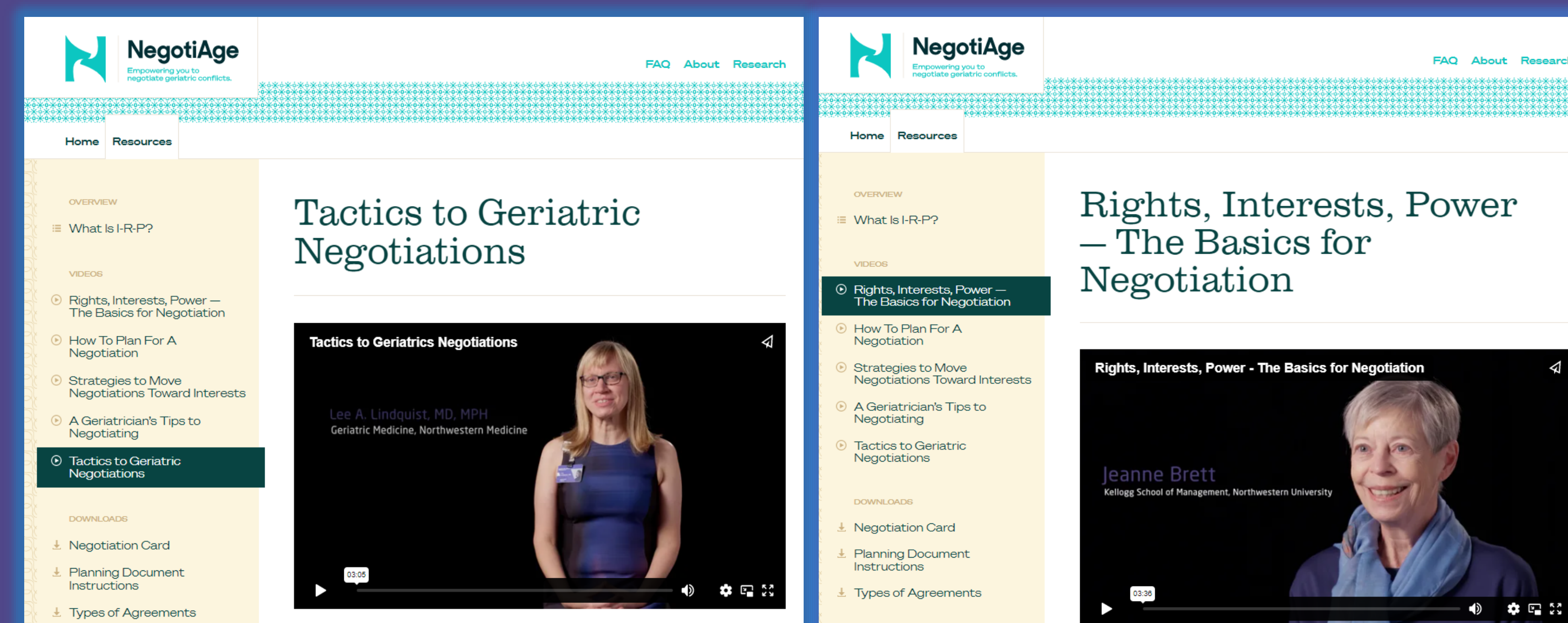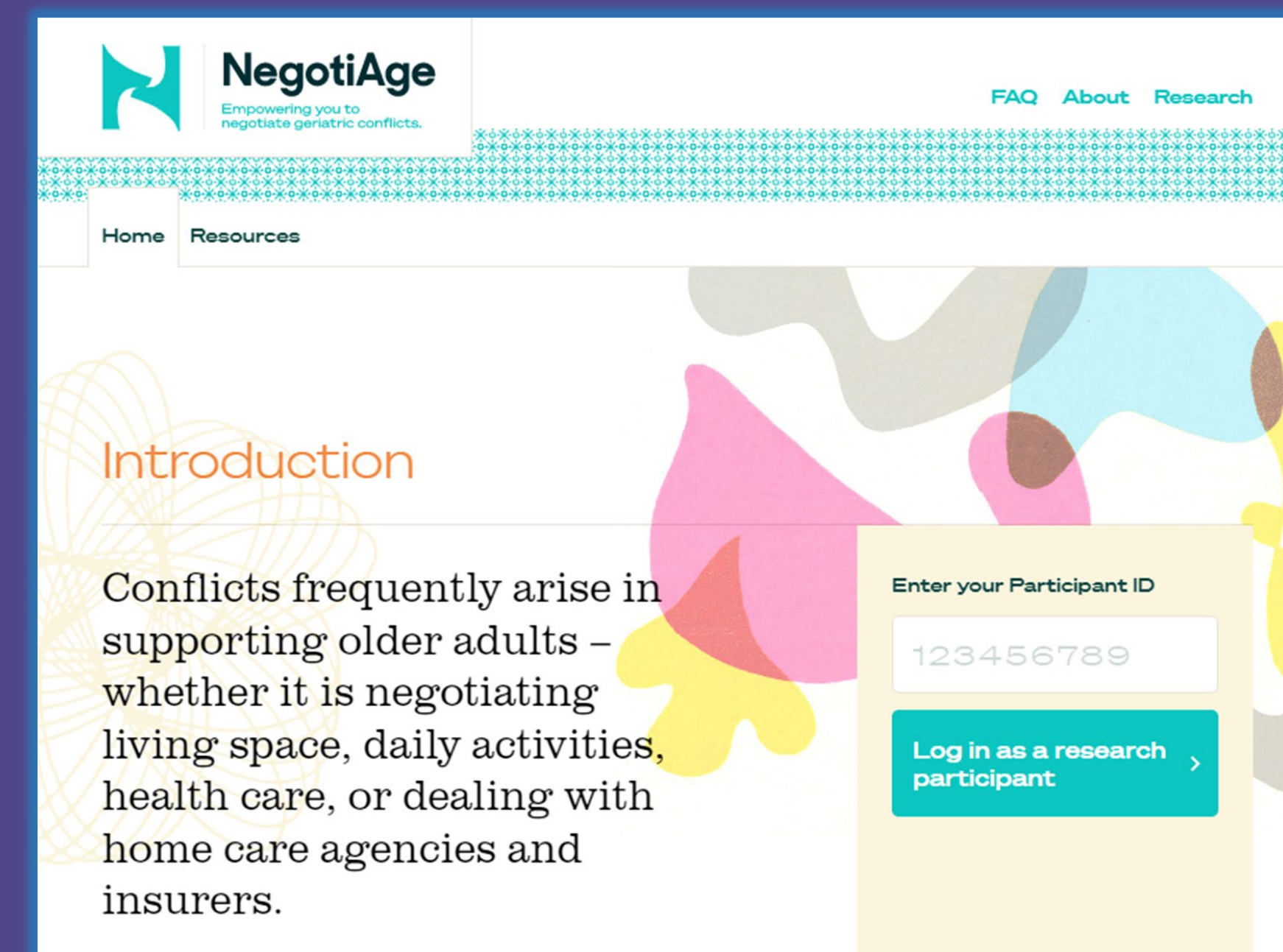
Pilot testing showed NegotiAge is feasible and usable.

Table 2. USE Questionnaire: Usefulness, Satisfaction, and Ease of Use (N=12)

Sub-panels	Mean	Standard Deviation
Usefulness (8-items)	5.7	0.76
Ease of use (11-items)	5.2	0.96
Ease of learning (4-items)	5.7	0.74
Satisfaction (7-items)	5.6	1.1

1= strongly disagree; 2=disagree; 3=somewhat disagree; 4=neither agree or disagree; 5=somewhat agree; 6=agree; and 7=strongly agree
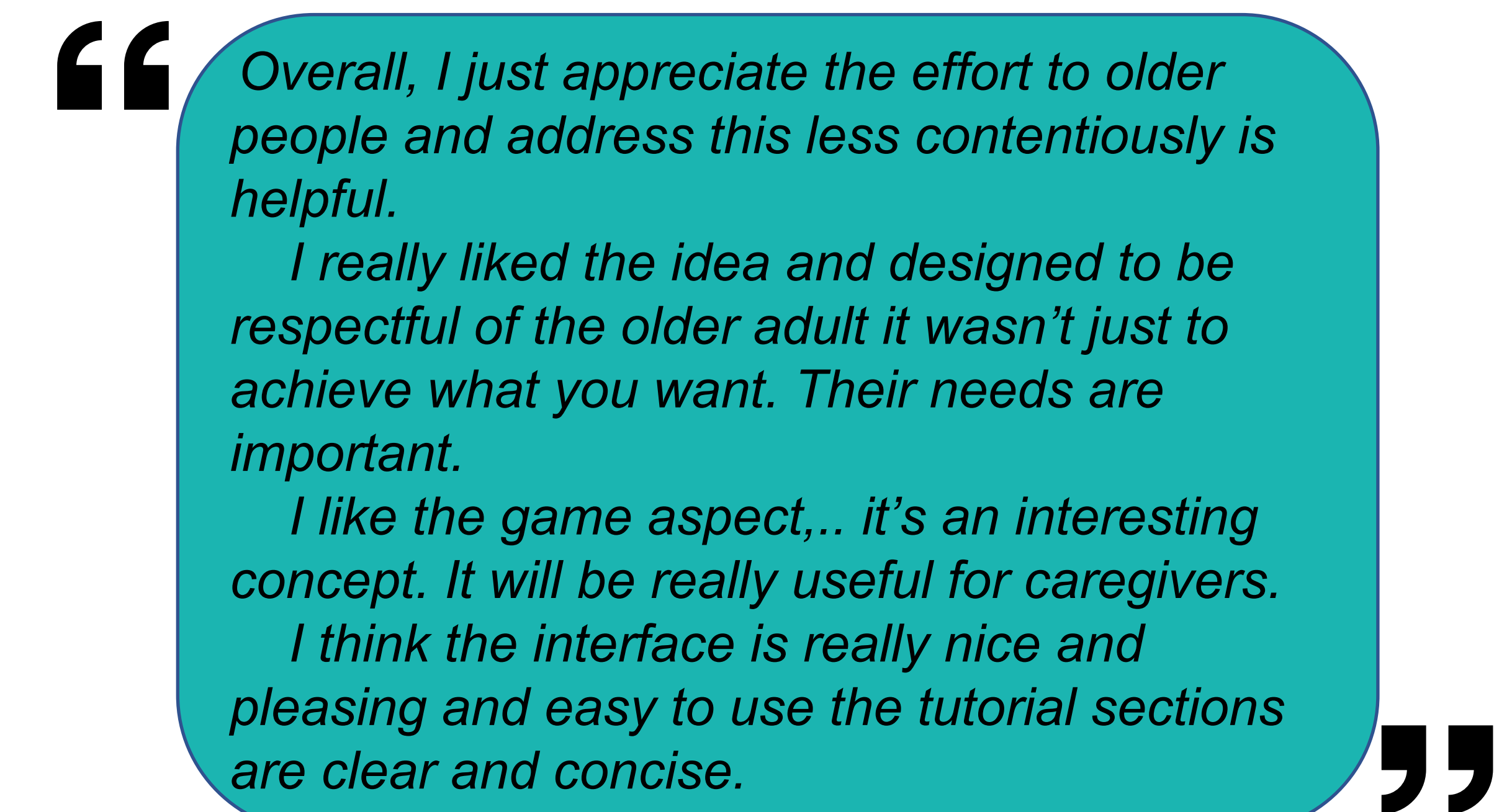

RESULTS, cont.

Table 1. Participant demographics (N=12)

Age, M (SD)	54 (14)
Sex, % Female	92%
Race %*	
Black	17%
White	75%
Education, %	
Some College	8%
College Graduate	50%
Graduate Degree	42%
Living situation, %*	
Alone	8%
With	83%
Spouse/Partner	17%
With Son/Daughter	17%
With Other Relative	17%
Other	8%
Marital Status, %	
Married	83%
Never Married	17%

Participants rated NegotiAge (including website, educational materials, videos, and negotiation training simulations) favorably across usefulness, satisfaction, and ease of learning domains (Table 2).

Overall, participants provided positive qualitative feedback (Figure 2).

Figure 1. Selected Participant Quotes

> *Overall, I just appreciate the effort to older people and address this less contentiously is helpful.*
> *I really liked the idea and designed to be respectful of the older adult it wasn't just to achieve what you want. Their needs are important.*
> *I like the game aspect,.. it's an interesting concept. It will be really useful for caregivers.*
> *I think the interface is really nice and pleasing and easy to use the tutorial sections are clear and concise.*

CONCLUSION

NegotiAge is an Artificial Intelligence-based Caregiver Negotiation Program, that is usable and feasible for family caregivers to become familiar with navigating conflicts seen in caring for PWD. Multiphase Optimization Strategy (MOST) randomized testing will be conducted next to optimize this program.

We are actively recruiting for a national randomized controlled trial to test NegotiAge – online/phone (no in-person assessments). If you are a family supporter of an older adult with memory loss and interested in participating, learn more here:

CONTACT US

Alaine.Murawski@northwestern.edu - Murawski
LAL425@northwestern.edu - Lindquist
Twitter: @LeeLindquistMD